
Executive Summary

This document presents Georgia's management plan for the Ochlockonee River basin, which is being produced as a part of Georgia's River Basin Management Planning (RBMP) approach. The Georgia Environmental Protection Division (EPD) has developed this plan in cooperation with several other agency partners including the USDA Natural Resources Conservation Commission, Georgia Soil and Water Conservation Commission, Georgia Forestry Commission, U.S. Geological Survey, Georgia Geological Survey, and Georgia Wildlife Resources Division. The RBMP approach provides the framework for identifying, assessing, and prioritizing water resources issues, developing management strategies, and providing opportunities for targeted, cooperative actions to reduce pollution, enhance aquatic habitat, and provide a dependable water supply.

Purpose of the Basin Plan

The purpose of this plan is to provide relevant information on the characteristics of the Ochlockonee River basin, describe the status of water quality and quantity in the Ochlockonee River basin, identify present and future water resource demands, present and facilitate the implementation of water quality protection efforts, and enhance stakeholder understanding and involvement in basin planning.

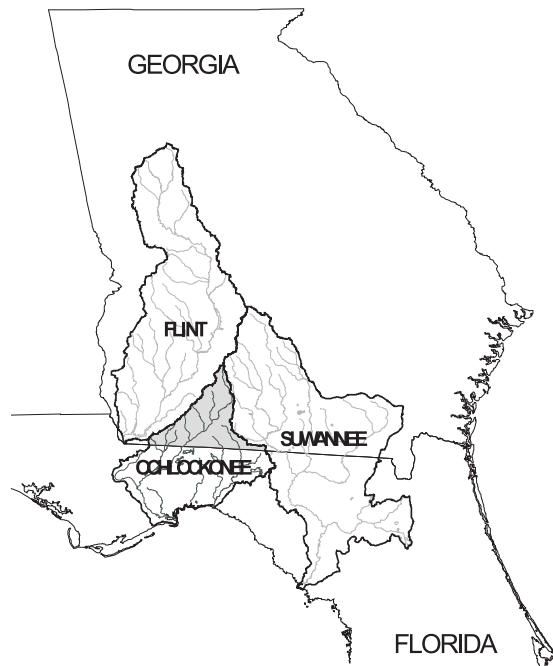
This Ochlockonee River Basin Management Plan includes strategies to address a number of different basinwide objectives. These include:

- Protecting water quality in lakes, rivers, streams, estuaries, and coastal waters through attainment of water quality standards and support for designated uses;
- Providing adequate, high quality water supply for municipal, agricultural, industrial, environmental, and other human activities;
- Preserving habitat suitable for the support of healthy aquatic and riparian ecosystems;
- Protecting human health and welfare through prevention of water-borne disease; minimization of risk from contaminated fish tissue, and reduction of risks from flooding; and
- Ensuring opportunities for economic growth, development, and recreation in the region.

Achieving these objectives is the responsibility of a variety of state and federal agencies, local governments, business, industry, and individual citizens. Coordination among these many partners can be challenging, and impacts of actions in one locale by one partner on conditions elsewhere in the basin are not always understood or considered. River Basin Management Planning is an attempt to bring together stakeholders in the basin to increase coordination and to provide a mechanism for communication and consideration of actions on a broad scale to support water resource objectives for the

entire basin. RBMP provides the framework to begin to understand the consequences of local decisions on basinwide water resources.

This river basin plan will serve as the road map for managing the water resources in the Ochlockonee River basin over the next five years. It contains useful information on the health of the Ochlockonee River basin and recommended strategies to protect the basin now and into the future.



Ochlockonee River Basin Characteristics

The Ochlockonee River basin is located in the southwest part of Georgia, occupying an area of 6,330 square miles of which approximately 1,460 square miles are within Georgia. The basin lies within the Coastal Plain physiographic province, which extends throughout the southeastern United States. The Ochlockonee River drains into the Gulf of Mexico. One of the unique features of the Ochlockonee River is the presence of two smaller watersheds, the Aucilla River and Ward Creek watersheds, each of which discharge their waters separately into the Gulf of Mexico without ever merging with the Ochlockonee River.

Water Resources

The surface water resources of the basin are divided into four watersheds or hydrologic units: the Upper Ochlockonee River, the Middle Ochlockonee River, Wards Creek, and the Aucilla River.

Biological Resources

The basin encompasses parts of two major land resource areas (Southern Coastal Plain and Atlantic Coast Flatwoods) providing many different ecosystem types. These ecosystems provide habitat for diverse species of aquatic and terrestrial wildlife. Several of the species are currently threatened or endangered.

Population and Land Use Characteristics

The major population centers in the Ochlockonee River basin include Thomasville, Moultrie, Cairo and Pelham. The population is expected to increase at an average growth rate through 2050.

More than 51 percent of the basin is covered by forests and forestry-related activities account for a major part of the basin's economy. Agriculture is also a significant land use activity supporting a variety of animal operations and commodity production.

Local Governments and Planning Authorities

The local governments in the basin consist of counties and incorporated municipalities. The Ochlockonee basin includes part or all of 7 Georgia counties. These counties are members of two different Regional Development Centers.

Water Quantity Conditions

Surface water supplies in the basin include water in rivers, and ponds. Groundwater is the primary water source of the Ochlockonee River basin. In the Coastal Plain Province, aquifer yields are higher and groundwater withdrawals make up the majority of the total water budget. Georgia's Drinking Water Program oversees 11 active and permitted public water systems in the Ochlockonee River basin.

The primary demands for water supply in the basin include municipal and industrial use, agricultural use, and recreation. The demand for drinking water is expected to remain stable in the near future due to average population growth rates. Agricultural water demand in the Ochlockonee River basin is considerable. Future agricultural water demand is expected to increase significantly within the basin.

Water Quality Conditions

The major environmental stressors that impair or threaten water quality in the Ochlockonee River basin include traditional chemical stressors, such as oxygen demanding substances and bacterial contamination, as well as less traditional stressors, such as stream channel modifications and alteration of physical habitat.

Significant potential sources of environmental stressors in the basin include point source discharges such as municipal and industrial wastewater, and storm sewers; and nonpoint sources that result from diffuse runoff from urban and rural land uses. Based on EPD's 1998-1999 water quality assessment, urban runoff and rural nonpoint sources are now the major sources of failure to support designated uses of water bodies in the Ochlockonee basin.

Point Sources

Point sources are defined as the permitted discharges of treated wastewater to river and tributaries that are regulated under the National Pollutant Discharge Elimination System (NPDES). These permits are issued by EPD for wastewater discharges and storm water discharges.

Municipal discharges. There are currently 2 permitted major municipal wastewater discharges with flows greater than 1 MGD in the Ochlockonee River basin. There are also 5 minor public discharges. EPD monitors compliance of these permits and takes appropriate enforcement action for violations. As of the 1998-1999 water quality assessment, 2 stream segments (totaling 16 miles) were identified in which municipal

discharges contributed to a failure to support designated uses. Total maximum daily loads (TMDLs) were established in 2001 for these segments. The TMDLs for these segments are being implemented through the NPDES permitting process and nonpoint source programs.

Industrial discharges. There are relatively few industrial wastewater dischargers in the basin including 1 major facility. EPD identified no stream segments where permitted industrial discharges contributed to a failure to support designated uses.

Permitted storm water discharges. Urban storm water runoff in the Ochlockonee basin has been identified as a source of water quality impairment. Urban runoff which is collected by storm sewers is now subject to NPDES permitting and control.

Nonpoint Sources

Nonpoint sources of pollution include a variety of pollutants that are carried across the ground with rainwater and are deposited in water bodies. The 1998-1999 water quality assessment results for the Ochlockonee basin indicate that urban and rural nonpoint sources contribute significantly to failure to support designated uses of water bodies. The major categories of nonpoint source pollution in the basin include the following:

- Urban, industrial, and residential sources, which may contribute storm water runoff, unauthorized discharges, oxygen-demanding waste, oil and grease, nutrients, metals, bacteria, and sediments.
- Agricultural sources, which may contribute nutrients from animal wastes and fertilizers, sediment, herbicides/pesticides, and bacteria and pathogens.
- Forestry activities, which may contribute sediments.

Support of Designated Uses

Under Georgia regulations, designated uses and associated water quality standards provide goals for water quality protection. EPD assessed the streams in the Ochlockonee basin and reported the results in the *Georgia 2000 305(b)/303(d) list*. This assessment indicated that 1 out of 26 stream segments (4 miles) supported uses, and 7 out of 26 (67 miles) partially supported uses, while 18 out of 26 (138 miles) did not support designated uses.

Key Environmental Stressors

The major threats to water quality in the Ochlockonee River basin are summarized below.

Dissolved Oxygen. The 1998-1999 water quality assessments indicated that listings due to violations of water quality standards for dissolved oxygen were one of the most commonly listed causes of failure to support designated uses. Dissolved oxygen concentrations contributed to lack of full support on 147 miles, constituting 19 stream segments. Oxygen consuming substances may be discharged to streams from point and nonpoint sources. In general, nonpoint sources are the most significant sources at this time. Severe drought conditions during the 1998-2000 period significantly impacted the southern part of the state, including the Ochlockonee River basin. According to EPD's "1998-2000 Georgia Drought Report," the rainfall shortage in this region amounted to almost 23 inches. The drought conditions likely contributed to the low dissolved oxygen concentrations documented in the Ochlockonee River and its tributaries. In addition, it should be noted that dissolved oxygen concentrations are naturally low in parts of the Ochlockonee River basin.

Fecal coliform bacteria. The 1998-1999 water quality assessments indicate that listings due to violations of water quality standards for fecal coliform bacteria were one of the most commonly listed causes of failure to support designated uses. Fecal coliform bacteria concentrations contributed to lack of full support on 125 miles, constituting 17 stream segments. Fecal coliform bacteria may arise from point and nonpoint sources, such as wastewater treatment plants, agricultural nonpoint sources, leaking septic systems, and storm water runoff. As point sources have been brought under control in the basin, nonpoint sources have become increasingly important as potential sources of fecal coliform bacteria.

Nutrient loading. Nutrient loading is potentially an important issue in the Ochlockonee River basin. Excess nutrient loads can promote undesirable growth of algae and degradation of water quality. The major sources of nutrient loading in the Ochlockonee basin are agricultural runoff, urban runoff, storm water, and wastewater treatment facilities.

Fish tissue contamination. Fish consumption guidelines for individual fish species are in effect for 3 stream segments (51 miles). The majority of the guidelines for stream segments are the result of mercury. Most of the mercury load is believed to be of atmospheric or natural origin.

Flow and Temperature Modification. Stream flow and temperature affect the kinds of organisms able to survive in the water body. Stream flow and temperature also affect how much oxygen is available to the organisms. The potential threats to temperature regime in streams of the Ochlockonee basin are warming by small impoundments, increases in paved surface area, and the removal of trees which provide shade along stream banks.

Sediment Loading and Habitat Degradation. A healthy aquatic ecosystem requires a healthy physical habitat. One major cause of disturbance to stream habitats is erosion and sedimentation. As sediment is carried into the stream, it can change the stream bottom, and may smother sensitive organisms. Turbidity associated with sediment loading also may potentially impair recreational and drinking water uses. Sediment loading is of greatest concern in developing areas and major transportation corridors. The rural areas of the basin are of lesser concern with the exception of rural unpaved road systems, areas where cultivated cropland exceeds 20 percent of the total land cover, and areas in which foresters are not following appropriate management practices.

Strategies for Water Supply

At this time, water quantity appears to be adequate for all uses within the Georgia portion of the Ochlockonee basin, and there are no major new water supply projects proposed. There are, however, several water quantity concerns in the Ochlockonee basin which are of significance to decision makers.

Strategies for Water Quality

Water quality in the Ochlockonee River basin is generally good at this time, although problems remain to be addressed and proactive planning is needed to protect water quality into the future. Many actions have already been taken to protect water quality. Programs implemented by federal, state, and local governments, farmers, foresters, and other individuals have greatly helped to protect and improve water quality in the basin over the past twenty years.

The primary source of pollution that continues to affect waters of the Ochlockonee River basin results from nonpoint sources. These problems result from the cumulative effect of activities of many individual landowners or managers. Population is growing every year, increasing the potential risks from nonpoint source pollution. Growth is essential to the economic health of the Ochlockonee River basin, yet growth without proper land use planning and implementation of best management practices to protect streams and rivers can create harmful impacts on the environment.

Because there are many small sources of nonpoint loading spread throughout the watershed, nonpoint sources of pollution cannot effectively be controlled by state agency permitting and enforcement, even where regulatory authority exists. Rather, control of nonpoint loading will require the cooperative efforts of many partners, including state and federal agencies, individual landowners, agricultural and forestry interests, local county and municipal governments, and Regional Development Centers. A combination of regulatory and voluntary land management practices will be necessary to maintain and improve the water quality of rivers, streams, and lakes in the Ochlockonee River basin.

Key Actions by EPD. The Georgia EPD Water Protection Branch has responsibility for establishing water quality standards, monitoring water quality, river basin planning, water quality modeling, permitting and enforcement of point source NPDES permits, and developing Total Maximum Daily Loads (TMDLs) where ongoing actions are not sufficient to achieve water quality standards. Much of this work is regulatory. EPD is also one of several agencies responsible for facilitating, planning, and educating the public about management of nonpoint source pollution. Nonpoint source programs implemented by Georgia and by other states across the nation are voluntary in nature. The Georgia EPD Water Resources Branch regulates the use of Georgia's surface and ground water resources for municipal and agricultural uses, which includes source water assessment and protection activities in compliance with the Safe Drinking Water Act.

Actions being taken by EPD at the state level to address water quality problems in the Ochlockonee River basin include the following:

- **Watershed Assessments and Watershed Protection Implementation Plans.** When local governments propose to expand an existing wastewater facility, or propose a new facility, EPD requires a comprehensive watershed assessment and development of a watershed protection implementation plan.
- **Total Maximum Daily Loads (TMDLs).** Where water quality sampling has documented standards violations and ongoing actions are not sufficient to achieve water quality standard within a two year period, a TMDL will be established for a specific pollutant on the specific stream segment in accordance with EPA guidance. TMDLs established for 303(d) listed waters in the Ochlockonee River basin in 2001. Implementation plans will be developed in 2002.
- **Source Water Protection.** Most of the public water supply in the Ochlockonee basin is drawn from groundwater. To provide for the protection of public water supplies, Georgia EPD is developing a Source Water Assessment Program in alignment with the 1996 amendments to the Safe Drinking Water Act and corresponding EPA guidance.
- **Fish Consumption Guidelines.** EPD and the Wildlife Resources Division work to protect public health by testing fish tissue and issuing fish consumption guidelines as needed, indicating the recommended rates of consumption of fish from specific waters. The guidelines are based on conservative assumptions and provide the public with factual information for use in making rational decisions regarding fish consumption.

Key Actions by Resource Management Agencies. Nonpoint source pollution from agriculture and forestry activities in Georgia is managed and controlled with a statewide non-regulatory approach. This approach is based on cooperative partnerships with various agencies and a variety of programs. Agriculture in the Ochlockonee River basin is a mixture of livestock and poultry operations and commodity production. Key partners for controlling agricultural nonpoint source pollution are the Soil and Water Conservation Districts, Georgia Soil and Water Conservation Commission, and the USDA Natural Resources Conservation Service. These partners promote the use of environmentally-sound Best Management Practices (BMPs) through education, demonstration projects, and financial assistance.

Forestry is a major part of the economy in the Ochlockonee basin and commercial forest lands represent over 51 percent of the total basin land area. The Georgia Forestry Commission (GFC) is the lead agency for controlling silvicultural nonpoint source pollution. The GFC develops forestry practice guidelines, encourages BMP implementation, conducts education, investigates and mediates complaints involving forestry operations, and conducts BMP compliance surveys.

Key Actions by Local Governments. Addressing water quality problems resulting from nonpoint source pollution will primarily depend on actions taken at the local level. Particularly for nonpoint sources associated with urban and residential development, it is only at the local level that regulatory authority exists for zoning and land use planning, control of erosion and sedimentation from construction activities, and regulation of septic systems.

Local governments are increasingly focusing on water resource issues. In many cases, the existence of high quality water has not been recognized and managed as an economic resource by local governments. That situation is now changing due to a variety of factors, including increased public awareness, high levels of population growth in many areas resulting in a need for comprehensive planning, recognition that high quality water supplies are limited, and new state-level actions and requirements. The latter include:

- Requirements for Watershed Assessments and Watershed Protection Implementation Plans when permits for expanded or new municipal wastewater discharges are requested;
- Development of Source Water Protection Plans to protect public drinking water supplies;
- Requirements for local comprehensive planning, including protection of natural and water resources, as promulgated by the Georgia Department of Community Affairs.

In sum, it is the responsibility of local governments to implement planning for future development which takes into account management and protection of the water quality of rivers, streams, and lakes within their jurisdiction. One of the most important actions that local governments should take to ensure recognition of local needs while protecting water resources is to participate in the basin planning process, either directly or through Regional Development Centers.

Continuing RBMP in the Ochlockonee River Basin

This basin plan represents one step in managing the water resources in the Ochlockonee basin. EPD, its resource management agency partners, local governments, and basin stakeholders will need to work together to implement the plan in the coming months and years. Additionally, the basin planning cycle provides the opportunity to update management priorities and strategies every five years. The Ochlockonee River

basin team and local advisory committee will both be reorganized to initiate the next iteration of the cycle. Agencies and organizations with technical expertise, available resources, and potential implementation responsibilities are encouraged to become part of the basin team. Other stakeholders can stay involved through working with the local advisory committee, and participating in locally initiated watershed planning and management activities. The next scheduled update of the Ochlockonee River basin plan is planned for 2007.